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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,654	11/04/2003	Sung Hun Kim	27427.002.00	5375

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EXAMINER
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PERRY, ANTHONY T

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/699,654	Applicant(s) KIM, SUNG HUN	
	Examiner Anthony T. Perry	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.  
 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-26 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 04 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/04/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5, 11-14, 17, 22-23, and 25-26 rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (US 6,437,497).

Regarding claims 1, 11-13, 23, and 25-26, the Ito reference teaches a monitor cathode ray tube comprising a glass panel (1A) having a front side; a funnel portion (3) attached to the glass panel (1A) forming a vacuum envelope; a fluorescent screen (4) on the inside surface of the panel (1A); a shadow mask (5) having a short and long side and a skirt (5S) spaced from the fluorescent screen (4) by a distance; a mask frame (6) coupled to the shadow mask (5); and electron gun (9) in a neck portion (2) of the funnel (3); and a deflection yoke (8) as the means for deflecting electron beams emitted from the electron gun (9) in horizontal and vertical directions (see Fig. 1). Ito teaches the length of the long side being 365mm and the length of the short side being 365mm (col. 6, lines 9-15). Ito teaches the skirt having a length of 17mm (col. 7, lines 42-47). Accordingly, the ratio of the length of the skirt to the length of the long side falls between 4.1% and 5.2%, and the ratio of the length of the skirt to the length of the short side falls between 5.4% and 6.8%.

Regarding claims 2 and 14, the height of the skirt on the long side is equal to the skirt on the short side (col. 7, lines 42-45).

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Regarding claims 5 and 17, the skirt (5S) includes embossments (17<sub>1</sub>) and slits (15<sub>1</sub>) (see Fig. 2D).

Regarding claims 10 and 22, the shadow mask has a thickness of 0.13mm (col. 5, lines 7-9).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4, 15-16, and 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 6,437,497) as applied to claims 1 and 13 above, and further in view of Hayashi et al. (US 6,051,918).

Regarding claims 3-4 and 15-16, Ito et al. teach that the shadow mask (5) is welded to the inside of the mask frame (6) (see Fig. 1). Ito et al. do not specifically state that the welding portion is within a distance of 3mm from an end of the skirt.

However, Hayashi et al. teaches if the welding points are provided in the upper part of the skirt portion, the deformation of the curved surface shape of the shadow mask is affected greatly by the deformation of the skirt portion in welding. On the other hand, if the welding points are provided in the lower part of the skirt portion, there is the case where the position of the welding points can not be secured due to an assembly error or the like. Therefore, the appropriate position of the welding points is determined to be about 2 mm above the lower end of the skirt portion (col. 7, lines 13-23). Accordingly, it would have been obvious to one of ordinary skill in

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the art at the time the invention was made to provide the welding portions within 3mm of an end of the skirt so that the mask is appropriately secured to the mask frame without unfavorable deformation.

Regarding claim 24, the Ito reference teaches a monitor cathode ray tube comprising a glass panel (1A) having a front side; a funnel portion (3) attached to the glass panel (1A) forming a vacuum envelope; a fluorescent screen (4) on the inside surface of the panel (1A); a shadow mask (5) having a short and long side and a skirt (5S) spaced from the fluorescent screen (4) by a distance; a mask frame (6) coupled to the shadow mask (5); and electron gun (9) in a neck portion (2) of the funnel (3); and a deflection yoke (8) as the means for deflecting electron beams emitted from the electron gun (9) in horizontal and vertical directions (see Fig. 1). Ito teaches the length of the long side being 365mm and the length of the short side being 365mm (col. 6, lines 9-15). Ito teaches the skirt having a length of 17mm (col. 7, lines 42-47). Accordingly, the ratio of the length of the skirt to the length of the long side falls between 4.1% and 5.2%, and the ratio of the length of the skirt to the length of the short side falls between 5.4% and 6.8%. Ito et al. teach that the shadow mask (5) is welded to the inside of the mask frame (6) (see Fig. 1). Ito et al. do not specifically state that the welding portion is within a distance of 3mm from an end of the skirt.

However, Hayashi et al. teaches if the welding points are provided in the upper part of the skirt portion, the deformation of the curved surface shape of the shadow mask is affected greatly by the deformation of the skirt portion in welding. On the other hand, if the welding points are provided in the lower part of the skirt portion, there is the case where the position of the welding points can not be secured due to an assembly error or the like. Therefore, the appropriate position of the welding points is determined to be about 2 mm above the lower end of the skirt

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portion (col. 7, lines 13-23). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the welding portions within 3mm of an end of the skirt so that the mask is appropriately secured to the mask frame without unfavorable deformation.

Claims 6-7 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 6,437,497) as applied to claims 1 and 13 above, and further in view of Nakagawa et al. (US 6,208,067).

Regarding claims 6 and 18, Ito et al. do not specifically teach the outside surface of the panel being substantially flat. However, the Nakagawa reference teaches a panel having a curved inside surface and a substantially flat outer surface so as to improve the flatness of the images appearing on the screen (col. 1, lines 5-12). Accordingly, one of ordinary skill in the art at the time the invention was made would have found it obvious to make the outside surface of the panel substantially flat so as to improve the flatness of the image displayed as well as to increase the visibility of the display and reduce the amount of ambient light reflected by the panel.

Regarding claims 7 and 19, Nakagawa teaches that the flat outside surface of the panel has a radius of curvature of 100,000mm (col. 6, lines 20-23). Accordingly, at least one point on the outside surface of the panel satisfies the condition of claims 7 and 19.

The reason for combination in the rejection above applies.

Claims 6, 8-9, 18, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 6,437,497) as applied to claims 1 and 13 above, and further in view of Pyun et al. (US 6,680,565).

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Regarding claims 6 and 18, Ito et al. do not specifically teach the outside surface of the panel being substantially flat. However, the Pyun reference teaches a panel having a curved inside surface and a substantially flat outer surface (Fig. 1). One of ordinary skill in the art at the time the invention was made would have found it obvious to make the outside surface of the panel substantially flat so as to increase the visibility of the display and reduce the amount of ambient light reflected by the panel.

Regarding claims 8-9 and 20-21, Ito et al. do not specifically teach the radius of curvatures of the inside of the panel and the shadow mask.

However, the Pyun reference discloses a panel having a diagonal radius of curvature within the range of about  $1.5R - 4R$  and a shadow mask having a diagonal radius of curvature within the range of about  $1.5R - 4R$  (col. 6, lines 24-26). Pyun teaches that when the radius of curvature of the inside of the panel is below  $1.2R$  the light transmission ratio between the peripheral portion of the screen and the center of the screen becomes less than 0.85 such that brightness is deteriorated (col. 5, lines 23-35). Pyun teaches that the radius of curvature of the shadow mask should be equal to or less than the curvature radius of inside of the panel and that if the radius of curvature of the shadow mask is greater than  $4R$  it may become distorted (col. 6, lines 10-26). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a shadow mask and an inside surface of the panel with a curvature radius of  $4R$  in order to provide a CRT with good brightness and a shadow mask with sufficient strength to maintain its shape.

### **Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is (571) 272-2459. The

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examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-24597. **The fax phone number for this Group is (703) 872-9306.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Anthony Perry  
Patent Examiner  
Art Unit 2879  
April 14, 2005



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